A Vision of the Future of Media Technology
Design Education - design and education from HCI to UbiComp

dr. Geert de Haan
g.de.haan@hr.nl

Media Technology / Human Centred ICT
Communication, media & information technology
Rotterdam University of Applied Sciences
Media Technology

→ Human-Centred Creative Technology
   apply technology in a creative manner to suit human beings

→ No more explicit external formal goals in HCI

→ web
   apps
   mashups
   services
   internet of things
   information ecologies

Seely Brown
Nijholt
de Haan
Boumans
Research or positioning?

A trilogy of teaching MT students: research methods, new developments & design methods

- research process, how to find papers ...
- new tech: empathy, sensing, adaptivity ...
- how to select and apply design methods

- design methods
- teaching methods
- current focus: content topics
1 Evolution of design methods

frontend – backend (client/server)

→ frontend = presentation / user interface

→ backend = database / functionality

result: the mashup

→ development continues well into production - notably in web-applications

→ 'natural' to do UCD, UX, prototyping, design exploration, co-design: fablabs & living labs

→ lightweight tools - no formal specs!
IOT design - structure

- Technical know-how declines
- Creativity increases
- Cooperative problem-solving

Context-sensitive app as a mash-up
2 DevThis - teaching methods

Teams of 1 ... 3 students: build a novel type of application: ubicomp, IoT, empatic bots

Acquire your own approach, platforms, toolkits, SDK's ...

Theoretical basis in the lessons via lectures, scientific papers ...

Mini-lectures to share one's knowledge and abilities with co-students
DevThis assignments: DIY teaching

→ Develop a mobile social context-sensitive application on iPhone, Android to enhance social cohesion in the local community (2010)

→ Build an IoT demonstrator to connect the Virtual and the Real (2013)

>> Concept poster, presentations, demonstrator

>> Project report, a scientific paper

>> Review of the design method

Where U@
DevThis assignment: social teaching

- Your project
  a drag & drop CMS prototype
- Mini-lecture
  object recognition on a mobile phone
- Workshop
  a scrum, arduino ... session

>> Skills & knowledge are shared in the classroom
>> Insights are accumulated / shared in a Wiki
DevThis theory: 'classical' teaching

- ubicomp, pervasive, ambient, IoT
- interfaces: AR / VR, tangible, natural, gestural, sensory, adaptive ...
- human perception, vision, speech ...
- design methodology
  - agile, participatory, co-design ...
  - usability lab, home lab & living lab ...
- nfc/rfid, sensor networks, semantic web, open data

>> turn your report into a scientific paper
>> write a short essay on HCI / ICT in 2050?
Project deliverables

- project & research plan
- vision & concept: poster
- design & technical specs
- code / prototype / demonstrator
- presentations
- demo + scientific paper

>> Students learn how to do scientific research
>> Research contributes to staff research
Example projects @ SensorLab 2012

- Wifi broadcasting @ site
- Building access control
- Mobile money
- Indoor climate control
- Bluetooth remote for old TV's
- Ubiquitous gaming in & with Sensorlab
- 3D aerial photography
- Herba sense
- Facial recognition & authentication
3 Modelling development: which topics to teach?

→ Mainframe - mini - pc - internet - web - mobile - iot
  functional usable personal ux ecology

→ Printing - web - cms - mobile web - apps - services
  information interactive code mashups

→ Ios of external, explicit, formal/well-defined goals

→ how to model trends for education?
eg. Harper: Being Human - HCI in 2020

- GUIs to Gestures
- VDUs to Smart Fabrics
- Handsets to the World in our Hands
- Simple Robots to Autonomous Machines That Learn
- Hard Disks to Digital Footprints
- Shrink-Wrapped to Mash-Ups
- Answer-Phones to Always-On
eg. de Haan: DevThis topics

- HCI
- ubiquitous/ambient/pervasive computing
- location and context sensors
- visual systems and object recognition
- augmented reality
- internet of things
- semantic web and metadata
- open data/city cloud
- exploratory, agile & co-design methods
Trends in trend watching


- Trends are messy as technology is (Dourish)
- Trends are intertwined and not isolated

>> Analyse the factors as independent as possible
>> Identify a set of developments for teaching
Content Developments

- **Tangible** interaction - touch, speech, gestures, sensing and recognizing
- **Mobile** networked applications
- **Smart** - intelligent/agency: personal, adaptive, smart, AI, persuasive, distributed intelligence, recommender systems
- **Sensitive** - intelligent/sensitivity: context sensitive, location-based, ambient/pervasive/ubicomp
- **Social** - collaborative - social media, h2h, crowd, social & affective bots
- **Connected** - oda, cloud, smart cities, services, mash-ups, rfid/nfc
Design Developments

→ **User centredness**: co-creation, co-design, scenario-based design, participatory design ...

→ **Design exploration**: fab-, stads-, sensorlabs;
  → sensorlab: concept development
  → living labs: product development

→ **Patterns & frameworks** (!?)
  continuous higher-level specification

→ myself: 'exploratory design'
  Fallman, D. (2003) @ CHI
  Network focussed Design (Booreiland)
DevThis: have students investigate & design future media concepts

Thats it!

mail: g.de.haan@hr.nl
school: http://med.hro.nl/haang/
papers: http://members.upc.nl/g.haan24/